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E.J.W. Barber
Occidental College

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Ribbons Around the Silk Road---Before Silk (Toward a Pre-History of Band Weaving)

**E.J.W. Barber
Occidental College**

The salty sands of the Tarim Basin, along the route of the later "Silk Road", have produced masses of textiles, splendidly preserved with all their colors, from 2000 BC down to the recent past. In 1995 Irene Good and I had the privilege of being invited to study some of the earliest textiles from this region--those preceding the Chinese entry into the area about 110 BC. I was particularly struck by the prevalence of textile bands, the subject I now wish to explore.

The earliest textiles there come from around Loulan, the dry, salty, and desolate northeast corner of the Taklamakan Desert. Here, beginning a century ago, explorers have occasionally found startlingly well-preserved corpses from 4000 years ago, such as the so-called Beauty of Loulan¹. She wore a hide skirt and moccasins, a blanket-wrap of natural brown sheep's wool woven with supplementary weft-looping, and a woven-felt hood with a feather. With her, the excavators found a pouch of woven grass containing wheat, a winnowing basket for wheat preparation, and part of a long-toothed comb that she probably used not only on herself but also to collect molting wool from the local breed of primitive-fleeced sheep. The wheat and sheep her people raised, together with their Caucasoid features, tell us that these folk must have wandered into the Tarim Basin from far to the west, for both wool and wheat were first domesticated in the foothills around Mesopotamia at the start of the Neolithic, about 8000 BC, spreading outward from there. The Loulan culture was still so simple, however, that weavers used their wool only in its natural colors, sometimes sorting it by color for effect, but seldom succeeding in dyeing it. The little three-strand braided band that ties the Beauty's felt hood around her face, however, contains one yarn dyed blue.

When we get our next major find of textiles 1000 years later, from a large tomb near Cherchen, people had figured out both how to dye their wools yellow, blue, and shades of red, and how to make much fancier plaited bands. The tall, typically Caucasian man from 1000 BC, central occupant of an intact tomb², had strong connections with the grasslands to the north and west, for he wore trousers, recently invented in the steppes for horse riding, and his tomb contained a saddle and the bones of a horse sacrifice. The invention of horse riding, in fact, had suddenly made it easy for riders to traverse the grasslands, which run north of the desert zone from what is now Budapest to Beijing. And traverse it they did. For example, after much research, I determined that the man's belt-band is constructed of six pairs of threads in five colors, in the same manner as Japanese *kumihimo*. The Japanese use a wooden disk supported on posts, with a central hole through which the cord forms, tensioned by a weight. Each component strand is wrapped around a small weight, preferably of 1 to 3 ounces, which hangs off the outer edge of the disk. By grasping opposite weights and swapping their places, one can quickly and easily plait a very solid cord. The order of moving the pairs (along with their number and color) determines the pattern.

As I learned how Japanese *kumihimo* is done, I was struck by the size and shape of the weights. As yet no houses of these early Tarim people have been excavated, only tombs, so we

¹ Elizabeth Wayland Barber, *The Mummies of Ürümchi* (New York: Norton, 1999), 71-6 and pl. 9.

² Barber *Mummies*, 23-45 and pl. 1.

don't have their workplaces or tools. But far to the west, all over Late Neolithic and Bronze Age Greece (e.g., at Zygouries) and in other parts of Europe, we find small spool-shaped clay objects in textile contexts. Their use had always been a puzzle--until, inspired by the Tarim cords, I began to check how much they weigh and found they run about 1.5 ounces: the perfect weight, shape, and size for kumihimo. Ironically, in the west almost no textiles and therefore no cords have survived, but the weights suggest that cord-making by such means may have been a major occupation. Other bobbin-shaped objects of similar weight, also found with recognizable textile tools on Crete (for example, in Neolithic layers at Knossos), may have served to store and tension the yarns used for other types of plaiting, in the manner of lace-bobbins but much coarser.

We examined other types of Tarim Basin plaiting--such as the maroon, oblique-plaited strap holding Cherchen Man's jaw shut. A slightly later tomb nearby contained multitudes of these oblique-plaited bands³, both plain and fancy ones, in various colors, sewn together edge to edge to make entire dresses! I was stunned when I realized the laborious way these striped garments were made: if they wanted stripes, why not just weave them? But when I considered that they were almost certainly semi-nomadic herders, I realized they could *not* easily take large looms along as they followed their sheep around for months; but they *could* take a bag of wool, and dye it, spin it, and plait it as they wandered--then quickly sew up the plaits into a dress. That is, for them, band-production might be a very efficient use of time for making clothing, where for us it seems ludicrous. By 500 BC, they were so proficient that they could do oblique plaiting with scores of threads at once, and weave elegant tapestry bands to go between.

The similarity in effect of the early band-made cloths to the banded silks so popular to this day among the people of Iran and Turkey makes me wonder if this was the origin of their predilection for patterned stripes. The best guess we have for the linguistic identity of the early peoples of the Tarim is, in fact, that they were speakers of Indo-European dialects like Iranian and Tokharian. We also know that Iranian speakers made it all the way to the Yellow River Valley and even Korea during this period (the Bronze Age), and that China and Korea passed many ideas to Japan. Might "kumihimo" have traveled across Eurasia by this route, to be preserved in the East while it disappeared in the West?

* * *

At just the same time as Iranians and Tokharians were spreading eastwards along the steppes and the future Silk Road, other Indo-Europeans were moving west. Among these were the Greeks and Hittites, who infiltrated today's Greece and Turkey during the second millennium BC. Linguistic evidence suggests they came from the grasslands. Our first depictions of what the Greeks were wearing come from Egyptian paintings (about 1475 BC) of Mycenaean traders wearing vertically striped kilts with fringes at the bottom. Our one detailed depiction of Hittite clothing also shows a banded kilt--this one with horizontal stripes, and fringes along the front opening⁴. I used to complain that the fringes on both these types of kilts were along the wrong edges: since the easy way to weave fancy stripes is in the weft, the usual warp-fringes would run parallel to the stripes, not on the perpendicular edge. But I stopped complaining after going to Ürümchi. If you make up your clothing by sewing bands together, as at Cherchen, that is exactly where the fringes will be: at the ends of the stripes. That confirms what the linguistics

³ Barber *Mummies*, 54-57 and pl. 6.

⁴ E.J.W. Barber, *Prehistoric Textiles* (Princeton: Princeton University Press, 1991), 333-37 and fig. 15.18-20.

already suggests, that the Greeks and Hittites, like the Tarim people, began as semi-nomadic herders.

But the Bronze Age Greeks in particular moved in among people with a long-standing and highly sophisticated textile tradition, which they commenced to borrow. Their vocabulary shows that the arriving Greeks had no loom larger than a small band loom, and that they soon borrowed the large warp-weighted loom developed in the Balkans in the Neolithic⁵. They also seem to have learned some new ways of making textile bands, for as soon as they took over the island of Crete, with its elaborate Minoan textile traditions, their pottery blossomed with copies of patterns we know to stem from band-weaving, because we have the remains in the Aegean of one such linen band with supplementary pattern-warps in red wool (from Lefkandi; unfortunately, still unpublished)

Furthermore, their economic texts, in Linear Script B, have at least seven words for textile bands and their making (Table 1). The first of these, a verbal root *az* -, shows by its variants that it refers to making the starting edge unique to the warp-weighted loom: the heading band that fixes the warp so the weights can be hung on with impunity. The process of weaving this band forms and organizes the warp; so the women assigned to this band-weaving task were apparently, in effect, warp-makers. Because of its construction, the header has a special ribbed appearance, as on the linens preserved in the pile-dwellings of Neolithic Switzerland⁶.

The next term, *onukh*-, literally "claw" or "clamp", occurs in two variants, "white"--that is, plain--and "multicolored". Marta Hoffman discovered that rural Scandinavian women who still used the warp-weighted loom in the 20th century often made the ribs of their headers multicolored by the simple trick of alternating the colors of the warp-threads in the band⁷. Since we find exactly such multicolored barred bands abruptly turning up in Mycenaean paintings--as borders of both clothing and frescoes, and as the rim-clamps on wheels--we can conclude that *poikil-onukh*- could refer to any strips decorated with varicolored bars. Note that it is easy to imitate the construction of the header on the other borders. Perhaps the women listed in the tablets as *onukh*-makers performed that service too.

Closing borders concerned the weaver too. Greek *termi*-should answer etymologically to English *thrum*, the cut warp-fringe, which might be tied off in a knot-pattern (as worn by Bronze Age Greek infantry; or the Tarim Basin shawl from 1000 BC), or elaborately woven back into a closing band by setting up a band-warp crossways to the thrums, as in many Neolithic Swiss linens⁸.

Note that, in some of these Neolithic edge-bands, half the warp of the band seems to do all the work of going over and under the weft, while the other half passes straight through. There are two principal ways this can happen, so far as I know. One is if you tie half the warp taut and allow the other half to move, for example by hanging a weight on it. The other is with a rigid heddle.

Rigid heddles are generally supposed to be a medieval or Renaissance invention, but I found an obscure publication of an unmistakable Roman example from Britain, with six slats (five

⁵ Barber *Textiles*, 276-81.

⁶ Emil Vogt, *Geflechte und Gewebe der Steinzeit* (Basel, 1937), fig. 82, 86; also Barber *Textiles*, 134-35 and fig. 4.11-12.

⁷ Marta Hoffmann, *The Warp-Weighted Loom* (Oslo, 1964), fig. 26-27; see also Barber *Textiles*, 324-27.

⁸ Barber *Textiles*, fig. 12.5 (Mycenaean tunic), fig. 4.13-14 (Swiss closing-bands); Barber *Mummies*, pl. 4A (Cherchen shawl).

surviving) carved from a single bone plate fitted with silver⁹. That pushes the history of this technique of band-weaving back nearly 1500 years, and I wouldn't be surprised, if I keep showing the picture to archaeologists, that we'll push it back a good deal further when they start recognizing little pierced ivory slats for what they are: heddles, not furniture decorations.

Next come *ampuk*-, which in Classical Greek refers to a headband, whether ornamented, or a plain sweatband, and *zo-ne*, the Indo-European word for a belt. Neither word tells us how the item was made, although other evidence from the Bronze and Iron Ages show that weaving and sprang were sometimes used.

The verb *plek*-, on the contrary, is the old Indo-European word for plaiting, already distinguished linguistically from weaving 5000 years ago--although the way it is used in the texts doesn't tell us what items were being plaited.

That leaves *odak*-, which is also used for some kind of band and is apparently related to the word for "toothed". What a "toothed" band is, I know not, unless--like *onukh*---it refers to some sort of standard pattern such as a zigzag. But whatever the exact interpretation, the Bronze Age Greeks clearly felt impelled to differentiate verbally among many types of bands. Textile bands were an important and well-developed part of Bronze Age life.

* * *

So what have we learned? Several geographical considerations, along with the similarity of the earliest preserved string skirts to the prepared warp of the warp-weighted loom, have long suggested to me that true weaving may have begun in Southeast Europe toward the end of the Paleolithic as an attempt to create more stable belt-bands to hold the fringes of the martially important string skirt¹⁰. We do find narrow plain-woven bands or tapes, however, among the earliest pieces of preserved cloth, from about 6000 BC at Çatal Hüyük in Turkey. Weaving as a craft then spreads quickly both northwest and southeast, and by the second millennium BC, plain bands develop into fancier ones. A particularly curious one is a plain-weave belt from Denmark, from about the 14th century BC, that uses variation in the direction in which the yarn was spun to create a zigzag effect through so-called "shadow stripes"¹¹. The peculiar thread-count suggests that number-magic may also have been intended--one way of making a magic girdle!

In the Near East and the Aegean, bands become more and more elaborately patterned by means of warp-faced weaving techniques, including probably card-weaving. (A group of 40 small four-holed ivory squares which could be weaving-tablets and date to 2300 BC turned up at Susa in western Iran, and the impression of a fabric with the "cording" unique to tablet-weaving occurs already on a hammer-headed cloak-pin from the Caucasus around 2800 BC¹².) It is at this time, too, that we find the greatest abundance of spool-shaped weights in southeast Europe, although the series of probable weights for plaiting begins a millennium earlier.

⁹ Robert Carr Bosanquet, "A Bone Weaving-Frame from South Shields in the Black Gate Museum," *Archaeologia Aeliana*, 4th series vol. 26 (1948), 89-97 and pl. IVb (edited and published posthumously, from a paper of 1918, by J.D. Cowen).

¹⁰ E.J.W. Barber, "On the Antiquity of East European Bridal Clothing," in *Folk Dress in Europe and Anatolia*, ed. Linda Walters (Oxford and New York: Berg, 1999), 13-31.

¹¹ Barber *Textiles*, 178-80 and fig. 6.7-8.

¹² R. de Mecquenem, "Offrandes de fondation du temple de Chouchinak," *Mémoires de la délégation scientifique française en Perse* 7 (Paris, 1905), 121 (cards); Barber *Textiles*, fig. 3.35 (pin).

The height of early band-making in western Europe, however, occurs with the tablet-weavers of the Celtic Hallstatt and La Tène cultures in the first millennium BC¹³. They seem to adopt tablets first to weave the heading bands needed to warp the warp-weighted loom. But soon they are finishing all four edges of the cloth with tablet-weaving: not just the starting edge but the side selvages and closing border too--and using more and more tablets. The record is held by the great blue-and-white mantle from Thorsberg in northern Germany, the edges of which each required a deck of 178 four-holed cards!

The plaid woolen twills of the garments themselves remind us once again of the trans-Eurasian movement of textile ideas that we started with, for, at the same time as the proto-Celtic Hallstatt culture, we find plaid woolen twills out in the Tarim Basin! -- edged, however, with plaited bands rather than tablet-woven borders¹⁴. Clearly, by 1000 BC, the future Silk Road was already an important Wool Road--or rather, a thin dusty track binding a huge continent together with a tenacious ribbon of human contact.

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¹³ Barber *Textiles*, 186-94, including vast bibliography of the analyses by Hans-Juergen Hundt; Karl Schlabow, *DerThorsberger Prachtmantel* (Neumuenster, 1965).

¹⁴ Barber *Mummies*, 131-45.

Table 1
Bronze Age Greek Vocabulary for bands and band-making

- 1) *az*- "warping by making a ribbed heading band"
 (di)az-omai, att-omai "set/divide the warp in the loom"
 (di)as-ma "warp; beginning of a cloth"
 ex-as-tis "closed edge of cloth, selvedge"
 az-etriae " women who make warps/headers (?)"
- 2) *onukh*- "band with barred or ribbed pattern; claw, clamp"
 leuk-onukh- "having a white edge-band"
 poikil-onukh- "having a multicolored band"
- 3) *termi*- "having warp-ends: warp-fringed closing border"
 (= Eng. *thrum* "warp-end")
- 4) *ampuk*- "headband"
 ampuko-worgoi "headband makers"
- 5) *zo[ne]* "belt"
- 6) *plek*- "plaiting"
 (= Eng. *flax* "plaitable fiber", Lat. *plecto* "plait")
- 7) *odak*- "toothed (band)"
 (Data from Ventris and Chadwick 1973,
 and Barber *Textiles*, 80, 271-72, 312-13)